1: J Lipid Mediat Cell Signal. 1997 Mar;15(3):255-84.

Platelet-activating factor and cardiac diseases: therapeutic potential for PAF inhibitors.

Feuerstein G, Rabinovici R, Leor J, Winkler JD, Vonhof S.

Department of Cardiovascular, UW2511, SmithKline Beecham Pharmaceuticals, King of Prussia, PA 19406-0939, USA.

Platelet-activating factor (PAF) is a potent phospholipid mediator released from inflammatory cells in response to diverse immunologic and non-immunologic stimuli. Animal studies have implicated PAF as a major mediator involved in coronary artery constriction, modulation of myocardial contractility and the generation of arrhythmias which may bear on cardiac disorders such as ischemia, infarction and sudden cardiac death. PAF effects are induced by direct actions of PAF on cardiac tissue to modify chronotropic and inotropic activity, or indirectly via the release of eicosanoids such as thromboxane A2 (TXA2), leukotrienes (LT) or cytokines (TNF alpha). The development of selective, high affinity PAF receptor antagonists has permitted investigations on the role of PAF in experimental animal models of cardiac injury. In vivo and in vitro studies strongly suggest that PAF receptor antagonists might convey therapeutic benefits in ischemic conditions and certain arrhythmias. In addition, PAF antagonists might have a cardiac allograft-preservation effect. Although clinical studies with PAF receptor antagonists in patients with cardiac diseases have not yet been reported, the experimental results to date suggest that PAF receptor antagonists might be useful in some specific cardiac disorders in humans.

PMID: 9041476 [PubMed - indexed for MEDLINE]

1: Lipids. 1991 Dec;26(12):1257-63.

Links

Platelet-activating factor in cardiovascular stress situations.

Rabinovici R, Yue TL, Feuerstein G.

Cardiovascular Pharmacology, SmithKline Beecham Laboratories, King of Prussia, Pennsylvania 19406-0939.

Since the elucidation of its chemical structure two decades ago, platelet-activating factor (PAF) has emerged as an important mediator of various cardiovascular stress situations. Most notably, PAF was implicated as a key factor in the septic shock syndrome, based on the similarities between endotoxin and PAF biological effects, the elevation of circulating and tissue levels of PAF during endotoxemia, and the protective effect of PAF antagonists in the septic state. In addition, accumulating data suggest the involvement of PAF in the pathophysiological processes associated with ischemia, hemorrhage and trauma, where PAF exerts its effects directly on cells and blood elements or indirectly through interactions with other mediators such as cytokines and prostaglandins. Nevertheless, the relative contribution of PAF to the pathophysiological processes in endotoxemia is still unknown and should await further investigations. The primary aims of this chapter are: to delineate the effects of PAF on the cardiovascular system, to summarize the data which suggest the involvement of PAF in stress situations of the cardiovascular system, and to identify areas where future experimental efforts should be focused.

PMID: 1819713 [PubMed - indexed for MEDLINE]

ANSWER 1 OF 19 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN
AN 1994:160728 BIOSIS
DN PREV199497173728
TI An anti-platelet activating factor
antibody and its effects on platelet aggregation.
AU Tatsumi, Noriyuki [Reprint author]; Terano, Yoshitake; Hashimoto, Kohzoh; Hiyoshi, Motofumi; Matsuura, Shiro
CS Dep. Clinial Lab. Med., Osaka City Univ. Med. Sch., 1-5-7 Asahimachi, Abeno, Osaka, 545, Japan
SO Osaka City Medical Journal, (1993) Vol. 39, No. 2, pp. 167-174.
CODEN: OCMJAJ. ISSN: 0030-6096.
DT Article
LA English
ED Entered STN: 8 Apr 1994
Last Updated on STN: 8 Apr 1994
CC Cytology - Human 02508
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Biochemistry studies - Carbohydrates 10068
Blood - Blood cell studies 15004
Endocrine - General 17002
Immunology - Immunopathology, tissue immunology 34508
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Cell Biology; Clinical Endocrinology (Human Medicine, Medical Sciences); Endocrine System (Chemical Coordination and Homeostasis)
IT Miscellaneous Descriptors
L-ALPHA-LYSOPHOSPHATIDYLCHOLINE PALMITOYL
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Hominidae
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

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Immunology - Immunopathology, tissue immunology 34508
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Cell Biology; Clinical Endocrinology (Human Medicine, Medical Sciences); Endocrine System (Chemical Coordination and Homeostasis)
IT Miscellaneous Descriptors
L-ALPHA-LYSOPHOSPHATIDYLCHOLINE PALMITOYL
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Hominidae
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

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     (FILE 'HOME' ENTERED AT 17:00:28 ON 27 FEB 2007)

     FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, JAPIO' ENTERED AT 17:00:48 ON 27
     FEB 2007
L1            34 S (PLATELET ACTIVATING FACTOR ANTIBOD?)
L2             1 S L1 AND REVIEW?
L3            27 DUPLICATE REMOVE L1 (7 DUPLICATES REMOVED)
L4            19 S L3 AND PD<1999

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     (FILE 'HOME' ENTERED AT 17:00:28 ON 27 FEB 2007)

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L2             1 S L1 AND REVIEW?
L3            27 DUPLICATE REMOVE L1 (7 DUPLICATES REMOVED)
L4            19 S L3 AND PD<1999

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ANSWER 1 OF 7 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

AN 1990:514666 BIOSIS

DN PREV199090131942; BA90:131942

TI HYDROLYSIS OF 2 ACYL-SN-GLYCERO-3-PHOSPHOCHOLINES IN GUINEA-PIG HEART MITOCHONDRIA.

AU BADIANI K [Reprint author]; PAGE L; ARTHUR G

CS DEP BIOCHEM MOL BIOL, FAC MED, UNIV MANITOBA, 770 BANNATYNE AVE, MANIT, CANADA R3E 0W3

SO Biochemistry and Cell Biology, (1990) Vol. 68, No. 9, pp. 1090-1095. CODEN: BCBIEQ. ISSN: 0829-8211.

DT Article

FS BA

LA ENGLISH

ED Entered STN: 19 Nov 1990
Last Updated on STN: 19 Nov 1990

AB Although both 2-acyl-sn-glycero-3-phosphocholine and 1-acyl-sn-glycero-3-phosphocholine may be produced from phosphatidylcholine hydrolysis, studies on the former have lagged behind that of the latter. In this study a lysophospholipase A2 that hydrolyses 2-acyl-sn-glycero-3-phosphocholine has been characterized in guinea pig heart mitochondria. The lysophospholipase A2 activity was not dependent on Ca2+ and was inhibited differentially by saturated and unsaturated fatty acids. This lysophospholipase A2 activity was able to discriminate among different molecular species of 2-acyl-sn-glycero-3-phosphocholines when they were presented individually or in pairs. The order of decreasing rates of hydrolysis of different molecular species of 2-lysophosphatidylcholines, when the substrates were presented singly, was 18:2 > 20:4 > 18:1 > 16:0. A differential inhibition of the rate of hydrolysis of the individual substrates was observed when the substrates were presented in pairs. The degree of inhibition was dependent on the molar ratio of the mixed substrates. The characteristics of the enzyme suggest that involvement in the selective release of fatty acids from mitochondrial phosphatidylcholine would depend on a high selectivity of phospholipase A1 for different molecular species of phosphatidylcholine. A lysophospholipase A1 activity was also characterized in the mitochondria with a distinct acyl specificity from the lysophospholipase A2. Other characteristics of the two lysophospholipases suggest that the two reactions are not catalyzed by the same enzyme.

CC Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Enzymes - Physiological studies 10808
Anatomy and Histology - Microscopic and ultramicroscopic anatomy 11108
Metabolism - Lipids 13006
Cardiovascular system - Physiology and biochemistry 14504

IT Major Concepts
Cardiovascular System (Transport and Circulation); Enzymology (Biochemistry and Molecular Biophysics); Metabolism; Morphology

IT Miscellaneous Descriptors
FATTY ACID RELEASE

ORGN Classifier
Caviidae 86300

Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia

Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

ANSWER 1 OF 7 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

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IT Major Concepts
Cardiovascular System (Transport and Circulation); Enzymology (Biochemistry and Molecular Biophysics); Metabolism; Morphology

IT Miscellaneous Descriptors
FATTY ACID RELEASE

ORGN Classifier
Caviidae 86300

Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia

Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

ANSWER 2 OF 7 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

AN 1989:443834 BIOSIS

DN PREV198988092106; BA88:92106

TI MEASUREMENT OF CHOLINE AND CHOLINE METABOLITE CONCENTRATIONS USING HIGH-PRESSURE LIQUID CHROMATOGRAPHY AND GAS CHROMATOGRAPHY-MASS SPECTROMETRY.

AU POMFRET E A [Reprint author]; DACOSTA K-A; SCHURMAN L L; ZEISEL S H

CS NUTRIENT METABOLISM LAB, DEP PEDIATR, BOSTON UNIV SCH MED, 85 EAST NEWTON ST, ROOM M1002, BOSTON, MASS 02118, USA

SO Analytical Biochemistry, (1989) Vol. 180, No. 1, pp. 85-90.
CODEN: ANBCA2. ISSN: 0003-2697.

DT Article

FS BA

LA ENGLISH

ED Entered STN: 4 Oct 1989
Last Updated on STN: 6 Oct 1989

AB We have developed a reproducible and sensitive procedure for the isolation and measurement of choline, phosphocholine, glycerophosphocholine, phosphatidylcholine, lysophosphatidylcholine and acetylcholine in a single 100-mg sample of biological tissue. Tissues were spiked with 14C-methyl- and 2H-methyl- or 15N-choline labeled internal standards for each compound. They wer extracted with chloroform/methanol/water and the aqueous and organic phases were dried. The organic phase was resuspended in chloroform/methanol (1/1, v/v) and an aliquot was applied to a silica-gel thin-layer chromatography plate. The plate was developed in chloroform/methanol/water (65/30/4, v/v). Segments which cochromatographed with external standards of phosphatidylcholine and lysophosphatidylcholine were stained, scraped, and hydrolyzed in 6 M methanolic-HCl at 80° C for 60 min, liberating free choline. The aqueous phase was resuspended in methanol/water and injected onto a silica HPLC column. Choline and its metabolites were eluted using a binary nonlinear gradient of acetonitrile/ethanol/acetic acid/1 M ammonium acetate/water/0.1 M sodium phosphate (800/68/2/3/127/10, v/v changing to 400/68/44/88/400/10, v/v). Peaks were detected with an on-line radiometric detector, collected, and dried under vacuum. Each choline ester was digested in 6 M HCl at 80° C to form choline. Choline was then converted to the propionyl ester and demethylated with sodium benzenethiolate. This volatile derivative was then isolated using gas chromatography and measured with a mass selective detector. Deuterated internal standards were used to correct for variations in recovery. Choline, glycerophosphocholine, phosphocholine, phosphatidylcholine, lysophosphatidylcholine, and acetylcholine were measured in rat liver, heart, muscle, kidney, plasma, red blood cells, and brain and in human plasma. This method may be useful in a variety of studies concerned with choline metabolism, including investigation in areas of nutrition, membrane biochemistry, and neurosciences.

CC Cytology - Animal 02506
Comparative biochemistry 10010
Biochemistry methods - Lipids 10056
Biochemistry studies - Lipids 10066
Biophysics - Methods and techniques 10504
Biophysics - Molecular properties and macromolecules 10506
Physiology - Comparative 12003
Metabolism - Lipids 13006
Digestive system - Physiology and biochemistry 14004
Cardiovascular system - Physiology and biochemistry 14504
Blood - Blood and lymph studies 15002
Blood - Blood cell studies 15004
Urinary system - Physiology and biochemistry 15504
Muscle - Physiology and biochemistry 17504
Nervous system - Physiology and biochemistry 20504

IT Major Concepts

ANSWER 2 OF 7 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

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DN PREV198988092106; BA88:92106

TI MEASUREMENT OF CHOLINE AND CHOLINE METABOLITE CONCENTRATIONS USING HIGH-PRESSURE LIQUID CHROMATOGRAPHY AND GAS CHROMATOGRAPHY-MASS SPECTROMETRY.

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Blood - Blood and lymph studies 15002
Blood - Blood cell studies 15004
Urinary system - Physiology and biochemistry 15504
Muscle - Physiology and biochemistry 17504
Nervous system - Physiology and biochemistry 20504

IT Major Concepts

Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Cardiovascular System (Transport and Circulation); Cell Biology; Digestive System (Ingestion and Assimilation); Metabolism; Methods and Techniques; Muscular System (Movement and Support); Nervous System (Neural Coordination); Physiology; Urinary System (Chemical Coordination and Homeostasis)

IT Miscellaneous Descriptors
RAT HUMAN LIVER HEART MUSCLE KIDNEY PLASMA RED BLOOD CELLS BRAIN

ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN 62-49-7 (CHOLINE)

Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Cardiovascular System (Transport and Circulation); Cell Biology; Digestive System (Ingestion and Assimilation); Metabolism; Methods and Techniques; Muscular System (Movement and Support); Nervous System (Neural Coordination); Physiology; Urinary System (Chemical Coordination and Homeostasis)

IT Miscellaneous Descriptors
RAT HUMAN LIVER HEART MUSCLE KIDNEY PLASMA RED BLOOD CELLS BRAIN

ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN 62-49-7 (CHOLINE)

ANSWER 14 OF 17 MEDLINE on STN
AN 89322894 MEDLINE
DN PubMed ID: 2665794
TI Regulation of phosphatidylcholine metabolism in mammalian hearts

AU Hatch G M; O K; Choy P C
CS Department of Biochemistry, Faculty of Medicine, University of Manitoba, Winnipeg, Canada.
SO Biochemistry and cell biology = Biochimie et biologie cellulaire, (1989 Feb-Mar) Vol. 67, No. 2-3, pp. 67-77. Ref: 104
Journal code: 8606068. ISSN: 0829-8211.
CY Canada
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
General Review; (REVIEW)
LA English
FS Priority Journals
EM 198908
ED Entered STN: 9 Mar 1990
Last Updated on STN: 9 Mar 1990
Entered Medline: 31 Aug 1989
AB Phosphatidylcholine is the major phospholipid in the mammalian heart. Over 90% of the cardiac phosphatidylcholine is synthesized via the CDP-choline pathway. The rate-limiting step of this pathway is catalyzed by CTP:phosphocholine cytidylyltransferase. Current evidence suggests that phosphatidylcholine biosynthesis in the heart is regulated by the availability of CTP and the modulation of cytidylyltransferase activity. Phosphatidylcholine is degraded mainly by the actions of phospholipase A1 and A2, with the formation of lysophosphatidylcholine. Lysophosphatidylcholine may be further deacylated by lysophospholipase or reacylated back into the parent phospholipid by the action of acyltransferase. The accumulation of lysophosphatidylcholine in the heart may be one of the biochemical factors for the production of cardiac arrhythmias.
CT Animals
*Heart: PH, physiology
*Mammals: ME, metabolism
Mammals: PH, physiology
*Myocardium: ME, metabolism
*Phosphatidylcholines: ME, metabolism
Phosphatidylcholines: PH, physiology
CN 0 (Phosphatidylcholines)